

REMARKS/ARGUMENTS

Claims 1, 3-11, 23-28, and 30-32 are pending. Claims 1,6, 7, 9, 10, 23, and 30 have been amended. Claim 2 has been canceled. No new claims or new matter has been added.

Claims 1, 3, 4, 6, 9, 11, 28, and 30-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Steffan et al. (US 6,338,001). Applicants traverse the rejection.

One of the features of the present invention is to classify defects using images redetected by SEM. An exemplary SEM used is shown in Fig. 5(b). This device uses four detectors 557, 558, 559, and 560. Detector 557 is used to obtain secondary electron image. Detector 558 is used to obtain energy filter image. Detectors 559 and 560 are used to obtain left and right images (see, page 10). In performing classification, the defect information calculated from the images detected by/from the detectors are used.

Claim 1 is directed to using a plurality of detectors and images obtained therefrom to extract images of a defect candidate. Claim 1 recites, "imaging an inspected object by illuminating and scanning an electron beam and detecting with a pair of detectors disposed at angles from said object and detectors disposed above said object..."

Steffan does not disclose or suggest these recited features. Accordingly, Steffan does not disclose the extracting step that uses images obtained the plurality of detectors. Steffan also does not disclose the displaying step, i.e., "...displaying on a screen said extracted defect candidate image together with first and second classification information, said first classification information relating to said first category, said second classification information relating to said second category..." Claim 1 is allowable.

Claim 6 recites, "imaging an object by illuminating and scanning an electron beam and detecting with a plurality of first detectors disposed at angles from said object and a plurality of second detectors disposed above said object; extracting images of a defect candidate from images obtained by said first and second detectors and calculating defect information of said defect candidate using said images obtained by said first and second detectors; classifying said extracted defect candidate image into at least one defect type by using said calculated defect candidate; evaluating criticality of defect of said defect candidate image that has been classified

into said at least one defect type; and displaying on a screen said extracted defect candidate image together with first and second information, said first information relating to said classification of defect type, and said second information relating to said evaluation of said criticality of defect, wherein said evaluating step is performed by comparing a circuit pattern area and a defect area, said circuit pattern area being obtained from a reference image, said defect area being derived from said imaging step, said extracted defect candidate image being extracted from said defect area. Steffan does not disclose or suggest the imaging step, extracting step, and displaying step as well as other features. Claim 6 is allowable for at least this reason.

Claim 9 recites, "imaging an object by illuminating and scanning an electron beam and detecting with a plurality of first detectors disposed at angles from said object and a plurality of second detectors disposed above said object; extracting first images of defect candidates from second images obtained by said first and second detectors and calculating defect information of said defect candidate using said second images obtained by said first and second detectors; classifying said extracted defect candidate images into a first category by using said calculated defect candidate; classifying said extracted defect candidate images into a second category, said second category relating to a predicted yield from said inspected object; and displaying on a single screen a distribution on said inspected object of said defect candidates classified in said first category together with first and second classification information, said first classification information relating to said first category, said second information relating to said second category, wherein said step of classifying said extracted defect candidate image into said second category is performed by comparing a circuit pattern area and a defect area, said circuit pattern area being obtained from a reference image and corresponding to said defect area on said reference image, said defect area being derived from said imaging step, said extracted defect candidate image being extracted from said defect area." Steffan does not disclose or suggest the imaging step, extracting step, and displaying step as well as other features. Claim 9 is allowable for at least this reason.

Claim 30 recites, "imaging the wafer to obtain images of a portion of the wafer, the portion of the wafer including a defect candidate, said imaging involving illuminating and scanning an electron beam and detecting with a plurality of first detectors disposed at angles

from said wafer and a plurality of second detectors disposed above said first detectors; defining a defect area by comparing the images of the portion of the wafer and at least first reference image; obtaining a circuit pattern area from a second reference image; classifying the defect candidate into a first category using said images of the defect candidate obtained from the imaging step; and classifying the defect candidate into either a killer defect or non-killer defect; and displaying on a screen the image of the defect candidate together with first and second information, the first information relating to the first category, the second information relating to the killer/non-killer defect category." Steffan does not disclose or suggest the above recited features. Claim 30 is allowable.

Claims 2, 7, 10, and 23-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Steffan in view of Gleason. Applicants traverse the rejection. Claims 7, 10, and 23-25 depend from one of the above independent claims. Gleason does not remedy the deficiency of Steffan. Claim 7, 10, and 23-25 are allowable at least for this reason. Claim 2 has been canceled.

Claims 5, 8, and 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Steffan in view of Nishimura further in view of Kumagai. Applicants traverse the rejection. Claim 5 depends from claim 1, and claim 8 depends from claim 6. These claims are allowable at least for this reason. Claim 29 is a canceled claim.

CONCLUSION

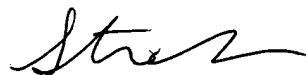
In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

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Preliminary Amendment

PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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